

**ABSTRACT**

**HYPERBARIC OXYGEN THERAPY IMPACT ON DEGREE OF  
METAMORPHOPSIA IMPROVEMENT ASSESSED THROUGH  
MACULAR INNER AND OUTER NUCLEAR LAYER THICKNESS  
CHANGES ON DRY TYPE AGE-RELATED MACULAR  
DEGENERATION PATIENTS**

**(Clinical Experimental Research on Age Related Macular Degeneration Dry  
type at Dr. Soetomo Hospital Surabaya)**

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**Objective :** Prove the effect of hyperbaric oxygen therapy on the improvement of metamorphopsia degree, change in macular inner and outer nuclear layer thickness in dry type AMD patients stage 1, 2 and 3 based on AREDS classification.

**Methods :** This was experimental study with pretest and post-test control group design. The subject included were AMD dry type patient who admitted to retinal division outpatient clinic. They were divided into two groups. The treatment group administered oxygen hyperbaric therapy and antioxidant tablet, and the control group administered antioxidant tablet only. The patient were examined visual acuity, anterior segment, IOP, metamorphopsia degree, and OCT for three consecutive times (before therapy, one day after therapy and fourteen days after therapy). Mann-Whitney test, Fisher's Exact test and Wilcoxon test were used for statistical analysis.

**Result :** twenty five eyes from fifteen patients were enrolled the study. Statistical analysis of this study showed that in treatment group treatment group on M-charts before therapy and after therapy ( $p = 0.003$ ), and there was a significant change of INL thickness before therapy and after therapy ( $p = 0.001$ ). In the control group there was no significant difference in the degree of vertical and horizontal metamorphopsia on M-charts before therapy and after therapy ( $p = 0.317$ ), no significant difference in the degree of vertical and horizontal metamorphopsia was observed on the M-chart one day after therapy and 14 days of therapy ( $p = 0.317$ ). In the treatment group, changes in INL and ONL thickness were found to be significantly different in one day before therapy and after therapy ( $p = 0.001$ ), but no significant difference was found on examination one day after therapy and 14 days after therapy ( $p = 0.786$ ). In the control group there was no significant difference in measurement of INL and ONL thickness before therapy and after therapy ( $p = 1,000$ ).

**Conclusion :** Hyperbaric oxygen therapy as adjuvant therapy, patient may accelerate the improvement metamorphopsia degree, INL and ONL thickness changes in AMD dry type

**Keywords :** Age related macular degeneration, metamorphopsia, hyperbaric oxygen therapy, M-chart